

Injection Molding

Theory and Practice

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Robinson Plastics Corporation



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TO MY FAMILY _____

SERIES PREFACE

The Society of Plastics Engineers is dedicated to the promotion of scientific and engineering knowledge of plastics and to the initiation and continuation of educational activities for the plastics industry.

An example of this dedication is the sponsorship of this and other technical books about plastics. These books are commissioned, directed, and reviewed by the Society's Technical Volumes Committee. Members of this committee are selected for their outstanding technical competence; among them are prominent authors, educators, and scientists in the plastics field.

In addition, the Society publishes the *SPE Journal*, *Polymer Engineering and Science (PE&S)*, proceedings of its Annual, National and Regional Technical Conferences (*ANTEC*, *NATEC*, *RETEC*) and other selected publications. Additional information can be obtained by writing to the Society of Plastics Engineers, Inc., 656 West Putnam Avenue, Greenwich, Connecticut 06830.

William Frizelle,

*Chairman, Technical Volumes Committee
Society of Plastics Engineers
St. Louis, Missouri*

PREFACE

This book is written for the following groups:

1. Injection molding engineers.
2. Operating personnel in injection molding plants.
3. Engineers in the plastics industry serving either in supplying machinery, materials, molds, equipment, and such, or in allied production fields such as blow molding, forming, and extrusion.
4. Nonplastic engineers who deal with plastics.
5. Purchasing agents who buy plastics.
6. End users who are not engineers but need knowledge of the process, molds, and materials.
7. Education, in the following:
 - a. Technical training programs.
 - b. In-house technical training programs.
 - c. In college courses as a textbook.
 - d. Background material for those attending lectures and courses on injection molding.

To accommodate readers with such varied interests, the material is organized so that the thrust of the information is stated clearly in nontechnical language, so that the scientific and technical parts can be utilized as required.

The information for this book was gathered from my practical experience operating an injection molding plant since 1940, constant communications with knowledgeable people in plastics, and theoretical information generated for courses and lectures given over the years.

Strong emphasis is placed not only on theory, but also on practical material, such as the 73 points checklist for mold designing and the chapter on correcting molding faults.

It might seem unusual that there is no book published in the United States about injection molding, since this process is one of the major methods of

plastics fabrication and its parts are used in almost every type of manufactured product. The major problem in this type of book is the selection of material, as a book could easily be written on the subject of any of the chapters. For this reason, extensive bibliographies are provided at the end of each chapter which cover English language periodicals until approximately the beginning of 1972. These periodicals were selected because of the information they offer, and to assist those wishing to expand their knowledge of a subject.

I am most grateful to the Society of Plastics Engineers, Inc., its officers, committee members, and staff (past and present) for establishing the intellectual climate which led to the writing of this book. The Society, too, is responsible for a large part of the literature and educational activities found in our industry. I am indebted to Louis I. Naturman of the Business Communications Co., Stamford, Conn., for reviewing critically the manuscript. The cooperation of the publishers of the various plastic periodicals, the material suppliers and machinery manufacturers, as well as the customers of Robinson Plastics Corp. is acknowledged.

Finally, I am more than appreciative of my wife, Laura, and children, Jesse and Julie, who "did without" many times while I was writing the book.

Irvin I. Rubin

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ABBREVIATIONS USED IN REFERENCES_____

BP	British Plastics
Chem. Eng. News	Chemical and Engineering News
IPE	International Plastics Engineering
Jap Pl.	Japan Plastics
MP	Modern Plastics
MP Enc.	Modern Plastics Encyclopedia
PDP	Plastics Design & Processing
PES	Polymer Engineering & Science (formerly SPE Transactions)
Plastics	no abbreviation
PT	Plastics Technology
Plastics World	no abbreviation
SPE-J	Society of Plastics Engineers-Journal
SPE-Tech Pap.	Society of Plastic Engineers Technical Papers
SPE Trans.	SPE Transactions (now PES)

